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ABSTRACT

On July 1, 1991, the ACRL (Association of College and Research Libraries) Research Committee launched a pilot project to mentor academic librarians in their conduct of research. Since the mentors and protegees were potentially from all over the United States, the decision was made to mentor using the electronic conferencing capability of BITNET (Because It's Time NETwork). This paper discusses the features of BITNET and examines some projects that have utilized electronic mail/conferencing in education and other related fields in terms of how their experiences and conclusions might improve the use of electronic conferencing for another group. In addition to electronic mail/conferencing in research, the roles of the moderators and participants are examined in light of the experience gleaned from other projects. The paper concludes with a discussion of the electronic mentoring process in the ACRL pilot project and some examples of electronic mentoring are presented. (Author/MAB)

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ELECTRONIC MENTORING OF RESEARCH

A Paper Presented at the
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in Atlanta, Georgia
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by

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ELECTRONIC MENTORING OF RESEARCH
by VICKI L. GREGORY

Abstract:

On July 1, 1991 the ACRL Research Committee launched a pilot project to mentor academic librarians in their conduct of research. Since the mentors and protogees were potentially from all over the United States, the decision was made to mentor using the electronic conferencing capability of BITNET. Bitnet is discussed as well as some of the projects which have utilized electronic mail/conferencing in education and other related fields in terms of how their experiences and conclusions might improve the use of electronic conferencing for another group. In addition to electronic mail/conferencing in research, the roles of the moderators and participants are examined in light of the experience gleamed from other projects, and the presentation is concluded with a discussion of examples of electronic mentoring as well as a discussion of the electronic mentoring process in this ACRL pilot project.

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ELECTRONIC MENTORING OF RESEARCH
ACRL RESEARCH COMMITTEE PROGRAM
JULY 1, 1991

ACRL Pilot Project

On July 1, 1991 the ACRL Research Committee launched a pilot project to mentor academic librarians in their conduct of research. Since the mentors and protegees were potentially from all over the United States, the decision was made to mentor using the electronic conferencing capability of BITNET. The mainframe computer at New Mexico State University serves as the host "LISTSERV" machine for the electronic conference.

Mentors and protegees are divided into six groups or subconferences based on their areas of research: bibliographic control, collection management, expert systems, library effectiveness, scholarly communication, and understanding the user.

Introduction to the Conference Session

This ACRL electronic-mentoring pilot project initiated by the ACRL Research Committee is breaking new ground in many ways while taking advantage of lessons learned from the experiences of users of electronic conferencing and electronic mail from different perspectives and disciplines. These other areas include the use of electronic conferencing and electronic mail in education, in other library applications, in publishing, in administration and management in addition to use in connection with research in different subject areas and its limited, documented use to date in mentoring situations. I plan to discuss briefly this afternoon

BITNET as well as some of the projects which have utilized electronic mail/conferencing in education and other related fields with an eye to how their experiences and conclusions might improve our use of electronic conferencing. I also plan to look at the use of electronic conferencing/mail in research, to look at the role of the moderators and participants in light of the experience gleamed from other projects, and to conclude with a couple of brief examples of electronic mentoring as well as a discussion of the electronic mentoring process in our pilot project.

BITNET (Because It's Time NETwork)

BITNET is the largest, general purpose electronic academic network. Founded in 1981 by the City University of New York and Yale University, the network originally consisted of those universities' mainframe computers connected via leased phone lines. BITNET presently links over 3000 institutions worldwide, including approximately 500 colleges and universities in the United States, as well as providing gateways to other academic networks and thus other academic institutions in Asia, Africa, Canada, Europe, Latin America, and the Middle East. Computers at these sites are connected via leased telephone lines supporting 9600 bits per second data transmission. BITNET functions with both IBM and non-IBM computers such as VAX, DEC, and UNIX. One may even access BITNET through CompuServe.[1]

BITNET is what is referred to by computer people as a "store and forward network," meaning that information originating at a

given site is received by intermediate network sites and forwarded on to its destination. The network structure has implications for sending messages and the speed at which messages may be sent as we will discuss later.

The main uses of BITNET are electronic mail and file transfer. The commands necessary to send messages, electronic mail, or files over BITNET vary for different mainframe environments; thus, if, you have access to BITNET, but you have never actually used it, in addition to the handbook prepared by Tom Peters, you may need to consult with your local campus computing personnel to find out all the necessary information for your own local system. Many campus computing centers will provide tip sheets, arrange for demonstrations of network use, or may even provide seminars in network use. To begin to use BITNET effectively, you will also need to become familiar with your mainframe's text editor, and, if you are accessing the system via a microcomputer, it would be extremely helpful to learn how to transfer files created on the microcomputer to the mainframe using a file transfer program. It is estimated that for someone with little or no relevant mainframe experience, it would take from four to eight hours to learn the necessary commands and concepts, such as signing on and off the computer account, creating, editing, and printing files, and using the network facilities. The manual for this pilot project will provide more details about specific commands for both the IBM and VAX mainframe environments. The advantages and disadvantages of this electronic mode of com-

munication will be discussed in reference to particular applications below.

The amount of time that it takes for conversational messages ("TELL" command on an IBM VM CMS mainframe), electronic mail ("NOTE" command in the same environment), or file transfers ("SENDFILE" command) to arrive at their destination can vary from just a few seconds to an hour depending upon the volume of message traffic on the network, the length of the message (shorter messages take less time to transmit not only because of their length as such but also because they are given priority on the network), and the number of computers that lie between your mainframe and the destination of the message. For example, it would take longer to send a message from a university in New York City to Austin, Texas than it would to send the same message to Tokyo, Japan because there are more computers in the BITNET path from New York to Austin than there are between New York and Tokyo.

A special feature of BITNET which this mentoring project will be utilizing is the electronic mail discussion list on what is called a "LISTSERV" machine which for this project is located at New Mexico State University. According to the computing center at my institution, the University of South Florida, there currently exists a list of BITNET discussion groups which is over 53 pages in length, or, in other words, currently there are over 900 computer discussion conferences. Outside of the electronic environment there is nothing really comparable to this type of discussion group.

A computer-mediated communication system such as electronic conferencing on BITNET is qualitatively different from other interpersonal and group communication media. In terms of our mentoring project, it can allow us to do new things, and not simply be an electronic replacement for correspondence, personal meetings, or telephone conversations. Information, questions, and opinions can be disseminated to and responses collected from individuals much faster than ever before. In fact, some studies have shown that the introduction of computer conferencing technology into organizations or groups of individuals may actually increase the frequency of other forms of communication. One explanation of this phenomenon is that computer conferencing enables people who would never have met/communicated otherwise to make contact with each other very easily.[2] In addition, since most universities do not charge for departmental or individual use of BITNET, this rapid means of communication is available to you at little or no cost to you or your library.

For additional information about BITNET and access to help documents for new users see:

> Britten, William A. "BITNET and the Internet: Scholarly Networks for Librarians." *College & Research Libraries News* (February 1990): 103-106.

This article contains the information necessary to join several library-related discussion groups as well as how to get informational documents about BITNET.

Electronic Conferencing in Education

Beginning as early as 1978[3], proponents of electronic mail argued its advantages for information exchange and instruction.

An experiment was conducted at the University of Arizona in the School of Engineering in the mid-1980's using electronic mail to supplement both on-site and off-campus instruction. (The off-campus instruction used video technology and videotape, microwave and satellite delivery to students, usually in their work place.) Reactions of both students and instructors were generally favorable. Qualitatively, instructors found that more challenging questions, which reflected more thought, were raised by students using electronic mail than in the classroom. Instructors also felt that their own electronic responses were often of higher quality than they provided off-the-cuff in the classroom. Students appreciated being able to contact the instructor whenever a question or problem arose at any hour, without playing telephone tag, or having to visit the instructor's office. Students who disliked electronic mail found it too impersonal, or inconveniencing them through the necessity of locating a terminal, or forcing them to type. Other users who were dissatisfied with this particular experiment in electronic conferencing complained about technical problems such as poor online editors and other system features.[4]

The Center for Distance Learning of Empire State College (New York) piloted an online study in 1987 by offering a course in contemporary American diplomacy entirely through the use of com-

puter conferencing and electronic mail. The Center ordinarily provides instruction through tutored, independent study. In this study the tutoring was conducted entirely through means of electronic conferencing and electronic mail. The instructor initiated a series of items (questions, topics, etc.) to which all participants posted responses until the instructor terminated the discussion. Papers were submitted by electronic mail, and electronic mail was also used for private messages between the instructor and students and between students. The students used electronic mail to test out ideas on the class and later developed these ideas into papers. The instructors felt that the resulting student work as compared to previous classes was better quality written work both in terms of breadth of research and quality of analysis. Both the electronic conferencing and E-mail tended to break down the isolation of the student from his or her peers. It permitted the student to benefit from the shared experiences of a group engaged in the same study and the opportunity to measure his or her ideas against those of others in the group.[5]

Some of the problems noted included the loss of nuances of non-verbal communication. Also since electronic messages tend to be more terse or concise than verbal or "normal" written communication, electronic mail may be more easily misinterpreted by the reader. In addition, electronic mail is very egalitarian, meaning that every participant has an equal opportunity to be heard and, conversely, to be ignored (scrolled past). Thus, the

value of reasoned argument and careful, precise exposition are quickly understood. Electronic mail discussions cannot be dominated by the more aggressive student as classroom discussion can be dominated. According to one of the participating instructors, "Those who shoot from the hip or talk just to be noticed tend, I think, to feel pressure to be more thoughtful, since the record shows that no one is responding to their inputs. Those whose thoughtfulness or shyness often exclude them from timely participation in classroom discussion can set their own time and pace"[6]

The egalitarian nature of conferencing, however, treats each input discretely, and the participants must make the linkages that bring coherency to a discussion. (Coherency can also be obtained by input from the moderator of the conference which summarizes and ties the discussion together in a meaningful fashion -- more about the moderator later.) Another potential problem brought out was exemplified by the following quote from the study conducted at Empire State College: "Conferences that require mastery of arcane operating systems -- mere bells and whistles in the context of the subject of the conference -- will fail. They will fail because they make the computer the object, rather than the environment of the learning. We don't study the classroom in American diplomacy."[7] (This is a valid concern. The user interface with BITNET is dependent upon your local computer center. Some computer centers have BITNET interfaces that are user friendly, some have interfaces that might similarly be referred

to as user hostile. While anyone connected with the project and the group moderators will be more than happy to give you technical assistance, some procedures may be unique to your local computing environment, and, thus, will require help from your campus computing center.)

There have also been several electronic conferences in education using BITNET that have linked several international sites. One such effort linked student groups at the universities of Twente (The Netherlands) and Syracuse who discussed the potential impact of new technologies on the practice of education and training. A second group was later implemented which included students also from the University of Concordia (Montreal, Can.); Indiana University; and the University of Colorado, Denver.[8] Similar advantages and problems were noted as in the other examples.

Electronic Conferencing in Research Applications: Specifically the Use of BITNET in Research-Related Applications

There are numerous indications of the use of BITNET in research projects by individuals -- researchers in different universities collaborating in the writing of a research article, researchers sending articles or chapters of books to colleagues in other locations to critique, etc. However, in looking at the literature concerning uses of BITNET in research, I particularly looked for group efforts which allowed researchers to collaborate

who did not necessarily know one another personally before using the network.

The closest application to this pilot project that I could find in the literature is AEDNET, a special, international network utilizing BITNET created for educators, practitioners and researchers in adult education. AEDNET was established in 1987 with funding from the Syracuse University Kellogg Project in adult education. AEDNET has a moderator who establishes special interest groups (in areas such as literacy, technology, gerontology, and self-directed learning), disseminates and transfers information between special interest groups, and generally facilitates communication among users of the network. AEDNET encourages participants to: (1) solicit online reactions to their research; (2) conduct online discussions with groups of colleagues (special interest groups); (3) collaborate on papers; (4) participate in computer-mediated conferences.[9]

Another somewhat similar venture is *Psycologuy*, an electronic newsletter. In addition to the traditional functions of a newsletter, the editors have added a scholarly forum section devoted to active exchange about current research and theory. One of the editors is quoted in the APA Monitor as saying, "We want to change the image of the network [BITNET] so people will stop looking at it as a big graffiti board and start to look at it as a serious way to exchange ideas."[10]

These types of ventures are much newer than many of the examples found in education. AEDNET was begun in 1988, and *Psycolo-*

quy was announced in the April 1990 issue of the APA Monitor; therefore, I could not find any evaluations of these projects that have appeared in the literature to date.

Very recently, an electronic conference was started at Kent State University which discusses research issues in library and information science. However, it is not nearly so focused as we hope this ACRL electronic conference will be as it is not limited by time of library or subject areas.

A study has been done that examined the use of BITNET by researchers in the field of human communication. The questionnaire from that study asked these researchers to list and comment upon the major advantages and disadvantages to using BITNET in their research. The overwhelming major advantage listed by the respondents was speed of communication. The disadvantages mentioned were more varied. The greatest number of respondents listed inability to contact colleagues due to network down-time, lack of use or regular use by peers, and unknown electronic mail addresses. A few respondents claimed that electronic mail was addictive, and others complained about the huge volume of mail, much of which was not of interest to them.[11]

Role of the Moderator

Looking at the descriptions of and problems arising from other uses of electronic conferencing, it would appear that an active group moderator is necessary for the type of use that the ACRL Research Committee plans for this electronic mentoring project.

Based on the experiences of other groups using electronic conferencing, it has been shown that the moderator must play the host, setting a congenial, non-threatening climate, and stimulating participants to react. The moderator must also act as a "chairperson": summarize the discussion, ask for clarification, create unity, and keep the discussion moving and on track. The moderator must also act in a support structure to help solve or locate help to solve technical problems.[12]

To stimulate discussion, the group moderator should reinforce early attempts at participation. If participation lags, the moderator may need to send out leading and, hopefully, stimulating questions to participants. This is also a good technique to use if the discussion gets off track in order to help refocus the group. If the interests of a group appear to overlap with another, the group moderator can direct the attention of the overall conference moderator to the message. The conference moderator can then send the message to another group or groups for discussion and follow-up.

Because electronic conferencing takes place over an extended period of time, it is necessary at times for the group moderator to provide summaries of what has been transpiring by drawing together the main theme(s). It is altogether too easy for participants not to see the forest for the trees or in this case all the discrete messages. Summaries can also help keep the discussion in focus and on track.

From other groups' experiences with electronic conferencing, it is evident that sometimes conferences grind to a halt as mes-

sages become ever more specialized, longer, and more abstract. It will be important for the group moderators as much as possible given the specialized nature of our project to help keep the discussion from becoming so specialized that the majority of the participants find it uninteresting or not pertinent to their needs. There may well be times that the use of electronic mail between two or more of the participants may be more appropriate than sending a message over the conferencing route; however, it would also be self-defeating if too much of the message traffic became focused on particular individuals rather than the group as a whole.

Tips for All Participants (Mentors and Protegees)

For an electronic conference to succeed, all participants must actively participate. Writers in this area discuss the problem of so-called "lurkers," those who read but never participate in the discussion. Too many "lurkers" will grind an electronic conference to a halt. While electronic conferencing gives you the advantage of time to consider your response before replying, it is possible that delay will become procrastination until no response is ever given. Just as in a face-to-face conversation, people sending messages are anxious for a reply and can be easily discouraged from using the system if they feel that they are being ignored. If a "good" reply means waiting for some time, it is good policy to send an interim reply stating that

some consideration/consultation is necessary before a full response can be given.

In my research into the literature of electronic conferencing, I discovered a couple of articles dealing with E-mail etiquette, the major tips of which I have decided to pass along:

(1). Develop a regular habit of logging on to the system to read and respond to messages and to initiate your own messages.

(2). Cover only one subject per message. This practice facilitates replies, forwarding, and filing.

(3). Use upper and lower case text, because MESSAGES IN ALL CAPITAL LETTERS HAVE THE EFFECT OF SHOUTING.

(4). Be diplomatic. Criticism is always harsher when written, and electronic messages are easily forwarded. Try to develop a personal and friendly writing style in electronic mail messages.

(4). Be careful with your use of humor. Jokes often fare poorly on electronic mail, perhaps because the subtle cues of voice inflections and body language are lost. Experienced electronic mail users recommend that all jokes be identified with a sideways grin symbol ":-)" or with the word "smile" in parentheses.

(5). Be calm. You may have misinterpreted the implied criticism or missed the ironic humor in a message; do not send a reply while you are still hot under the collar. Networkers call this "flaming."[13]

A "flame" is a personal attack on someone who posts an article or message with which one disagrees. An article in the *Chronicle of Higher Education*, gives the following advice:

> "One bulletin board warns novice users about what it call 'spelling flames,' that is, articles in which readers correct spelling and grammar in other people's articles, often viciously. The immediate result seems to be for everyone to turn into a sixth-grade English teacher and pick apart each others' postings for a few weeks. This is not productive and tends to cause people who used to be friends to get angry with each other."[14]

In terms of our project, this is probably a good point to make. Many of us will not be experienced mainframe users, and our ability to construct files will be hampered by not having all the word processing features to which we have become accustomed on our own microcomputers. During the course of the pilot project, if you should have a completed document which you would like others in your group to examine for all types of errors, this kind of document might still be better entrusted to the U.S. mails, rather than attempted electronically.

Electronic Mentoring *Per Se*

I have heard about or read about only a couple of examples of true electronic mentoring. The incident I heard about was from a psychologist who spoke this past year at a Florida Special Libraries Association workshop on the subject of "technostress" or in this instance computer-related stress. Although her practice is now devoted almost exclusively to patients experiencing technostress, she described a period of time when she was herself

experiencing technostress, and she found relief by using BITNET to locate and communicate with a mentor who helped her overcome her stress.

Another case in point of electronic mentoring involves the area of teacher education. At the Curry School of Education at the University of Virginia, students receive electronic passwords when entering the school and retain them for one year following graduation. Access to the university's electronic mail system allows student teachers and beginning teachers to communicate with advisers/mentors at the university while they are out in the field doing their internship or during their first year of teaching. Some of the public schools in that area have acquired additional funding so that some of the teachers are able to maintain those links to mentors over a longer period of time. The author of an article about this project refers to the university as the "electronic academical village."[15]

ACRL Pilot Project: Mentoring Research via BITNET

I particularly liked that phrase - electronic academical village -- and I think it rather sums up what this project is all about: experienced researchers lending a hand and offering advice based on their own experiences to novice researchers.

In this pilot project beginning researchers will have the opportunity to work with several experienced researchers from all part of this country. Electronic conferencing eliminates the problems of telephone tag and differences in time zones. To

carry on a coast-to coast mentoring relationship would be stressful to say the least using conventional means of communication.

Many beginning researchers feel isolated from any sources of help. Your own library may have no one else interested in doing the same type of research that you are, or even have no one interested in doing research at all. This pilot project will hopefully put you in contact with mentors and peers who can be of assistance to you now and in the future. Also many beginning researchers are hesitate to call upon distinguished researchers in our field for assistance. In this pilot project, many of our mentors, who so graciously offered their time and assistance, are very distinguished researchers and authors in the field of library and information science.

I am sure many of you have taken advantage of some of the continuing education courses in research that ACRL has offered as pre-conferences and workshops across the country. While there is a great deal to be learned from "one-shot" meetings, we hope that a longer relationship with mentors will prove to be an excellent complement to these workshops and provide for a more individualized approach to problem-solving and other issues in library research.

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[3]. S.R. Hiltz and Murray Turoff, *The Network Nation: Human Communication Via Computer* (Addison-Wesley, 1978).

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[10]. Daniel A. Updegrove, John A. Muffo, and John A. Dunn, Jr., "Electronic Mail and Networks: New Tools for Institutional Research and University Planning," *Cause/Effect* 13 (Spring 1990), pp. 41-48. Also available as ERIC document. ERIC: ED 317

142.

[11]. Mark J. Schaefermeyer and Edward H. Sewell, Jr., "Communicating by Electronic Mail," *American Behavioral Scientist* 32 (Nov./Dec. 1988), p. 120.

[12]. Romiszowski and Haas, pp. 7-14.

[13]. Updegrove, "Electronic Mail and Networks," p.47.

[14]. Judith Axler Turner," 'E-Mail' Technology has Boomed, but Manners of its Users Fall Short of Perfection," *Chronicle of Higher Education* 34 (April 13, 1988): A16.

[15]. Glen Bull et al., "The Electronic Academical Village," *Journal of Teacher Education* 40 (July/Aug 1989): 27-31.